What is claimed is:

1   1.   A method of operation within a data processing system, the method comprising:

2   receiving a request to execute a first function;

3   executing a second function if the first function is defined to return data in a first

4   type of data structure, the second function, when executed, returning

5   formatting information that indicates an arrangement of fields of data within

6   the first type of data structure;

7   executing the first function to obtain a collection of data formatted according to the

8   first type of data structure; and

9   organizing the collection of data according to the formatting information returned

10   by the second function.

1   2.   The method of claim 1 wherein receiving a request to execute a first function

2   comprises receiving a request that indicates a data source to be accessed by the first

3   function.

1   3.   The method of claim 2 wherein receiving a request that indicates a data source

2   comprises receiving a uniform resource locator (URL) that indicates the data

3   source.

1   4.   The method of claim 1 wherein executing the second function if the first function is

2   defined to return data in a first type of data structure comprises executing the

3   second function if a predetermined keyword is specified as a data return type for the

4   first function.

1   5.   The method of claim 1 wherein executing the second function if the first function is

2   defined to return data in a first type of data structure comprises executing the

3   second function if the first function is defined to return data in an array of data

4   elements.

1   6.   The method of claim 5 wherein the data elements in the array correspond to rows of

2   a database table, respectively.

1   7.   The method of claim 6 wherein the formatting information indicates an

2   arrangement of columns within the database table.

1   8.   The method of claim 5 wherein executing the first function to obtain a collection of

2   data formatted according to the first type of data structure comprises executing the

3   first function to obtain the array of data elements.

1   9.   The method of claim 1 wherein the formatting information indicates an

2   arrangement of rows and columns of a database table and wherein organizing the

3   collection of data according to the formatting information comprises tabulating the

4   collection of data according to the arrangement of rows and columns.

1 10. A method of executing a function in a database management system, the method

2   comprising:

3   receiving a request to execute a first function that returns a predetermined data type,

4   the predetermined data type including an array of aggregate data values;

5   executing a second function to obtain formatting information that describes an

6   arrangement of component data values within each of the aggregate data

7   values;

8   executing the first function to obtain the array of aggregate data values; and

9   returning the array of aggregate data values in a data structure that includes the

10   component data values indicated by the formatting information.

1   11.   The method of claim 10 wherein executing the first function to obtain the array of

2   aggregate data values comprises executing the first function after executing the

3   second function.

1   12.   The method of claim 10 wherein executing the first function to obtain the array of

2   aggregate data values comprises executing the first function before executing the

3   second function.

1   13.   The method of claim 10 wherein executing the second function to obtain formatting

2   information that describes the arrangement of component data values comprises

3   executing the second function to obtain a list of attributes that correspond to the

4   component data values, each of the attribute including a name and a data type.

1   14.   The method of claim 13 wherein returning the array of aggregate data values in a

2   data structure that includes the component data values indicated by the formatting

3   information comprises returning each of the aggregate data values as a respective

4   set of the component data values.

1   15.   The method of claim 14 wherein each of the component data values has the name

2   and data type of the corresponding attribute.

1   16.   A system comprising:

2   a processing entity; and

3   a memory coupled to the processing entity and having program code stored therein

4   which, when executed by the processing entity, causes the processing entity

5   to:

6   receive a request to execute a first function included in the program code;

7   execute a second function included in the program code if the first function is

8   defined to return data in a first type of data structure, the second

9   function, when executed, returning formatting information that indicates

10   an arrangement of fields of data within the first type of data structure;

11   execute the first function to obtain a collection of data formatted according to

12   the first type of data structure; and

13   organize the collection of data according to the formatting information

14   returned by the second function.

1   17.   The system of claim 16 wherein the processing entity comprises a plurality of

2   processors coupled to one another in a network.

1   18.   The system of claim 17 wherein the memory comprises a plurality of sets of storage

2   devices, each set of storage devices being coupled to at least one of the processors

3   and including at least one non-volatile storage device.

1   19.   A system comprising:

2   a processing entity; and

3   a memory coupled to the processing entity and having program code stored therein

4   which, when executed by the processing entity, causes the processing entity

5   to:

6   receive a request to execute a first function that returns a predetermined data

7   type, the predetermined data type including an array of aggregate data

8   values;

9   execute a second function to obtain formatting information that describes an

10   arrangement of component data values within each of the aggregate data

11   values;

12   execute the first function to obtain the array of aggregate data values; and

13   return the array of aggregate data values in a data structure that includes the

14   component data values indicated by the formatting information.

1   20.   The system of claim 19 wherein the processing entity comprises a plurality of

2   processors coupled to one another in a network.

1   21.   The system of claim 20 wherein the memory comprises a plurality of sets of storage

2   devices, each set of storage devices being coupled to at least one of the processors

3   and including at least one non-volatile storage device.

1   22.   A computer-readable medium carrying one or more sequences of instructions

2   which, when executed by one or more processors, causes the one or more

3   processors to:

4   receive a request to execute a first function included in the one or more sequences

5   of instructions;

6   execute a second function included in the one or more sequences of instructions if

7   the first function is defined to return data in a first type of data structure, the

8   second function, when executed, returning formatting information that

9   indicates an arrangement of fields of data within the first type of data

10   structure;

11   execute the first function to obtain a collection of data formatted according to the

12   first type of data structure; and

13   organize the collection of data according to the formatting information returned by

14   the second function.

1   23. A computer-readable medium carrying one or more sequences of instructions

2   which, when executed by one or more processors, causes the one or more

3   processors to:

4   receive a request to execute a first function that returns a predetermined data type,

5   the predetermined data type including an array of aggregate data values;

6   execute a second function to obtain formatting information that describes an

7   arrangement of component data values within each of the aggregate data

8   values;

9   execute the first function to obtain the array of aggregate data values; and

10   return the array of aggregate data values in a data structure that includes the

11   component data values indicated by the formatting information.